

June 6, 1933.

A. A. STRAUSS

1,912,551

SAFETY HAT OR CAP

Filed Feb. 6, 1933

3 Sheets-Sheet 1

Fig. 1.

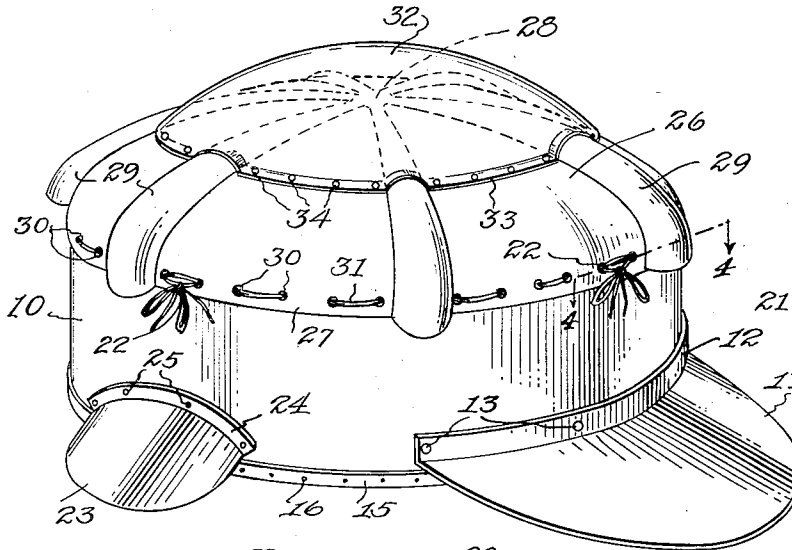


Fig. 4.

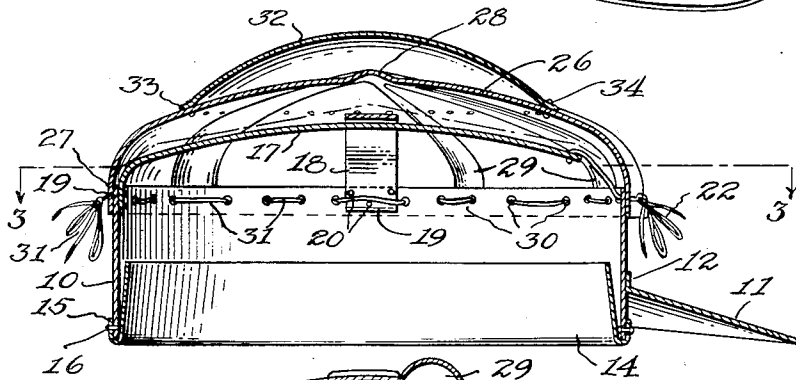
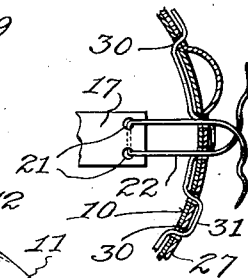


Fig. 2.

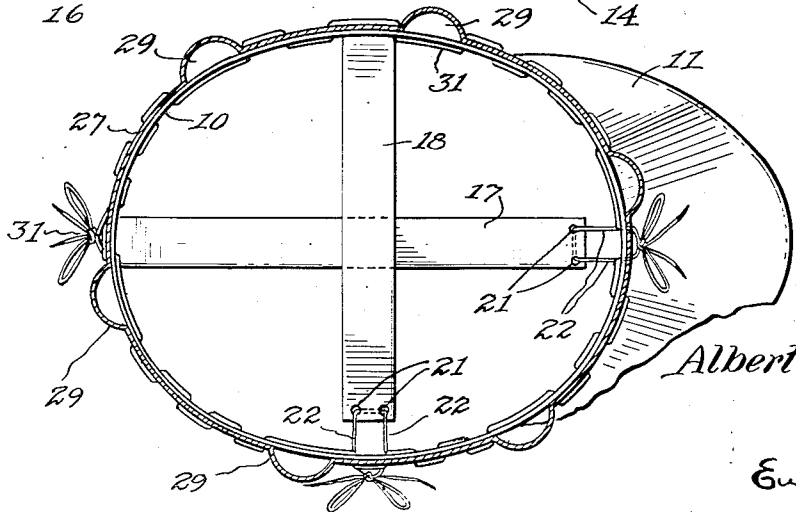


Fig. 3.

Inventor

Albert A. Strauss

Eugene C. Brown
Attorney

June 6, 1933.

A. A. STRAUSS

1,912,551

SAFETY HAT OR CAP

Filed Feb. 6, 1933

3 Sheets-Sheet 2

Fig. 5.

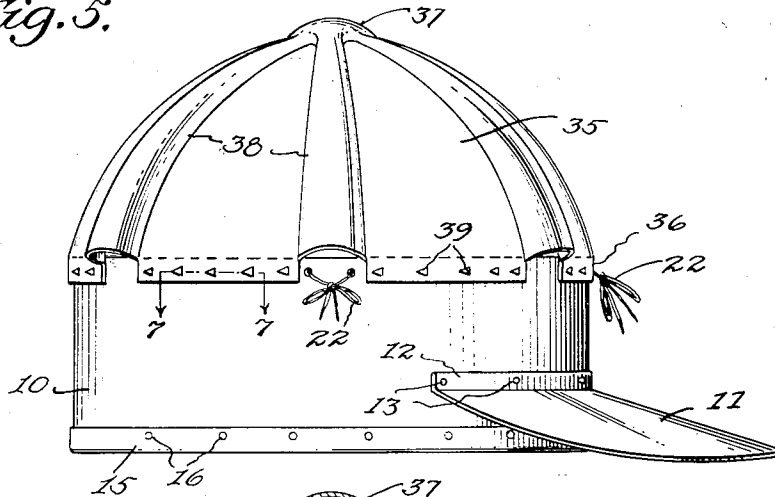


Fig. 6.

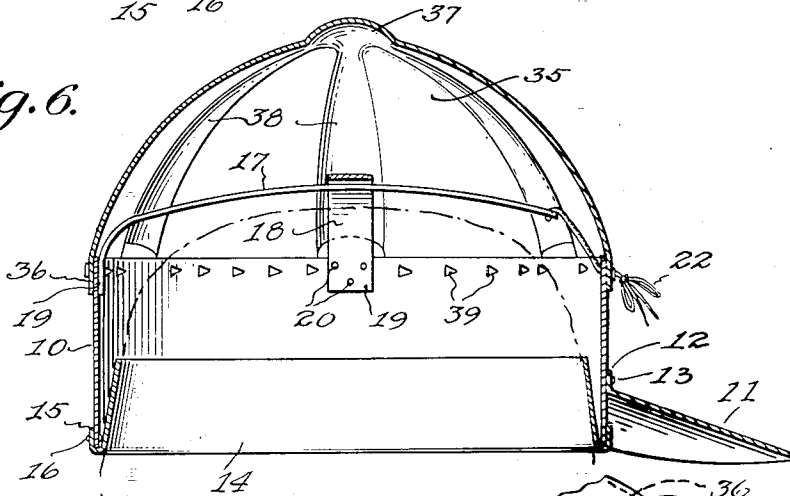


Fig. 7.

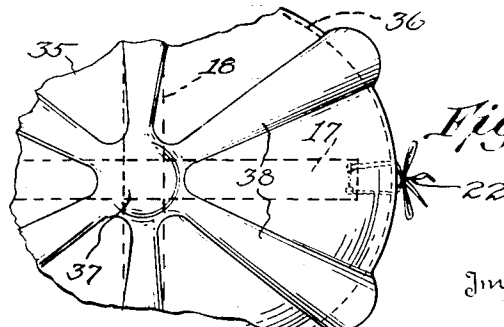
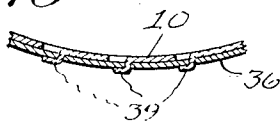


Fig. 8.

Inventor

Albert A. Strauss

Eugene C. Brown
Attorney

June 6, 1933.

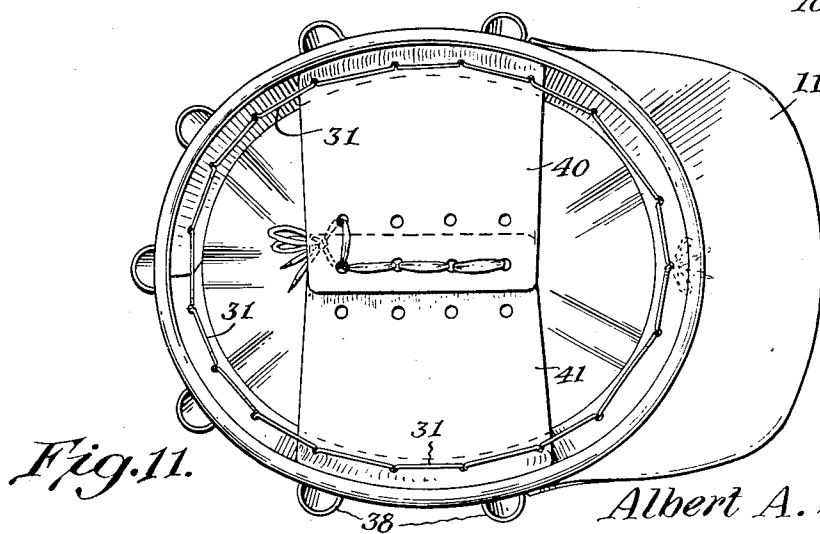
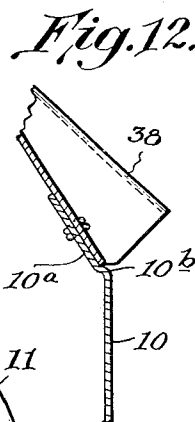
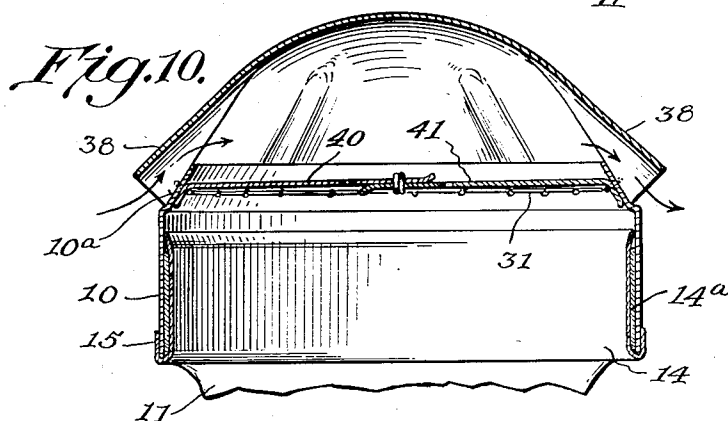
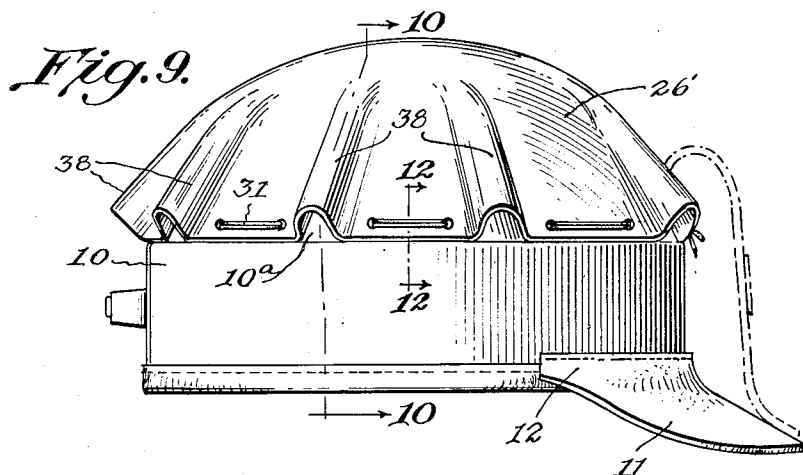
A. A. STRAUSS

1,912,551

SAFETY HAT OR CAP

Filed Feb. 6, 1933

3 Sheets-Sheet 3



Inventor

Albert A. Strauss

Engineer & Brown
Attorney

UNITED STATES PATENT OFFICE

ALBERT A. STRAUSS, OF PITTSBURGH, PENNSYLVANIA

SAFETY HAT OR CAP

Application filed February 6, 1933. Serial No. 655,538.

This invention relates to hats or caps of the type used to protect the head of the wearer from blows effected by dropped articles or by striking the head against beams and the like in mines and other places having low head room.

Included in the objects of the invention are the provision of a novel general construction of hat or cap adapted to be worn by persons in danger of striking their heads against obstructions or to have objects drop on their heads; to provide novel means at the crown portion of the hat or cap for stiffening such crown portion and preventing flexure and breakage under impact; to provide novel ventilating means for such a hat or cap; and to provide a novel arrangement for adjusting the shape of the hat or cap body and retaining it in adjusted shape.

With the above and other objects in view, as will be hereinafter apparent, certain preferred constructive forms of the invention will now be described and specifically claimed, reference being had to the accompanying drawings, wherein:

Figure 1 is a perspective view of one embodiment of the invention.

Figure 2 is a vertical section on the longitudinal plane of the form shown in Figure 1.

Figure 3 is a section, partly broken away, on the line 3—3 of Figure 2.

Figure 4 is a detail section on the line 4—4 of Figure 1.

Figure 5 is a side elevation of another embodiment of the invention.

Figure 6 is a vertical section of the form shown in Figure 5, the section being taken on the longitudinal median plane thereof.

Figure 7 is a detail section on the line 7—7 of Fig. 5.

Figure 8 is a plan view of a portion of the crown of the cap shown in Fig. 5.

Figure 9 is a longitudinal perspective view of further modification of my invention.

Figure 10 is a vertical sectional view on the line 10—10 of Fig. 9.

Figure 11 is a bottom plan view of the form shown in Fig. 9; and

Figure 12 is a fragmentary detail taken on the line 12—12 of Fig. 9, showing the offset or shoulder in the upper part of body

portion forming a ledge to receive the lower edge of the crown portion.

The body 10 of each form of the invention here disclosed consists of a wide flat endless band of suitable rigid and electrically non-conductive material such as fibre, or treated animal, vegetable or mineral matter, or chemical compounds capable of being pressed or molded to form. The band is shaped to form a substantially oval structure in plan as may be clearly seen by reference to Figure 3. A visor or peak 11 is provided with a flange 12 and is attached to the front of the body 10 by sewing or by any suitable fastening means, such as rivets 13. The visor is preferably made of leather. A sweat band 14 is fitted inside the lower portion of the body and has its lower edge turned outwardly and upwardly to embrace the lower edge of the body. The flange 15 formed by this up-turned portion is secured to the lower edge portion of the body by sewing or any suitable means such as the rivets 16. This sweat band is preferably made of soft leather or other soft material so as to prevent chafing of one's head by the hard lower edge of the body.

While the body 10 is to be made in various sizes to accommodate variations in head size, consideration must be given to the fact that heads of the same circumference vary in length and width and, with a stiff body, such as is here used, much discomfort would be entailed were no provision made for adjustment to fit heads of different proportions. Certain means are provided to effect such adjustment as will now be described. Referring to Figs. 1, 2 and 3, stiff cross bands 17 and 18 extend transversely of the body, the longitudinal center lines of these bands being, in plan, respectively coincident with the longer and shorter axes of the oval body respectively. A down-turned end or flange 19 is formed on each of these bands and lies against the upper edge portion of the body 10 when it is fixedly secured by the rivets 20 or other suitable means. The remaining end of each of these bands is spaced from the body wall opposite the point at which it is secured. Lacing holes 21 are provided in their free ends and lacings 22 extend through these

holes and through suitable holes in the body of the cap to its exterior where they are tied. Obviously, by tightening the lacing for one band and loosening that for the other the body may be contracted in one direction and allowed to expand in the other. Thus the body may be adjusted in shape to prevent discomfort to the wearer.

In Figure 1 the cap is shown as fitted with means to protect the ears. To this end a transversely arcuate ear guard 23 extends outwardly from each side of the body and inclines slightly downward with respect thereto. A flange 24 is formed on the inner end of each guard and fits against the body and rivets 25 or other suitable fastening means secure the flange to the body.

In Figures 1 to 4 the cap is shown as provided with a crown formed of like material as the body. This crown has, in these figures a low dome like body portion 26 provided with a down-turned peripheral edge portion 27 fitting around the outer surface of the upper edge portion of the body 10. A hollow boss 28 projects upwardly from the center of the body portion. Tapered flutes 29 are formed radially of the body portion 26 and open at their smaller ends into the hollow boss 28 while their larger ends terminate flush with the lower edge of the edge portion 27 and are open at these larger ends. These flutes are arranged in pairs leading away from the boss 28 in diametrically opposite directions. Registering perforations or lacing holes 30 are formed in the lapping portions of the body and crown and a lacing cord or strip 31 is laced through these perforations to securely hold the two together. This lacing cord is pulled taut before being tied so that it acts as a tension member to reinforce the cap at the junction of the body and crown and thus assists in preventing the spreading of these parts in the event of the crown receiving a heavy blow. A dome member 32 covers the central portion of the body portion 26 and a peripheral flange 33 on this dome member is secured by rivets 34 or other suitable fastenings to said portion 26. It will be seen that the periphery of the dome member and its flange are arched to fit over the flutes 29 and that the dome member is so shaped that it is centrally well spaced from the boss 28 and flutes 29. This dome member effects spreading of the stresses due to direct vertical blows on the central portion of the cap and thus increases the resistance of the crown portion against distortion or fracture.

In the form of the invention shown in Figures 5 to 8 the body portion 35 of the crown is of substantially hemispherical form and has a vertical edge portion 36 fitting on the outer face of the upper edge portion of the body 10. As in the previous form a central and upstanding hollow boss 37 is provided and tapered flutes 38 radiate therefrom. The

upstanding convex boss at the center of the crown increases the resistance to a heavy blow and also serves to distribute the shock to the radiating flutes directly connected therewith, thereby distributing the effect of the blow to the entire circumference of the body portion, thus preventing any concentration of a blow upon any part of the head of the wearer. The larger open ends of these flutes terminate slightly above the bottom edge of the portion 36. Tabs 39 struck out of the body 10 near its upper edge, extend through the portion 36 and are bent to lie flat against the outer face of the body as may be seen in Figure 7. In this form the tabs take the place of the lacing in the first form. It is to be understood, however, that the invention is not confined to the use of these two forms of means for securing the crown to the body since other means may be used for this purpose.

In the form shown in Figs. 9 to 12 the upper margin of the body 10 is tapered inwardly at 10^a at the same inclination as the lower margin of the crown, so that these parts may interfit closely and be drawn tightly together by means of a lacing cord 31. In this form the crown is so shaped and constructed that its edge extends to and rests upon a ledge or shoulder 10^b formed in the body at the junction of the vertical band portion and the inwardly tapering upper margin 10^a. By means of this construction it will be seen that the shocks due to impact or blows upon the crown which are transmitted radially in all directions to the body portion are received both by the tension or lacing cord 31 and by the ledge or shoulder 10^b. The shoulder or ledge thus acts as an abutment for the bottom edge of the crown, preventing undue strains upon the lacing cord and resisting any tendency of the crown to spread down over the body 10. The edge of the crown is thus held flush with the vertical body portion.

The ventilation of the hat is enhanced in the form shown in Figs. 9 and 10 by the tapering upper margin of the body portion. As shown in Fig. 10, the inward and upward inclination of the wall 10^a provides a wider throat for the ingress and escape of currents of air and cooperates with the upwardly slanting mouth of the flutes 38, to direct the air over the inner arched wall of the crown, thus keeping the head of the wearer cool.

It is customary to provide an inner lining of cloth secured to the body beneath the sweat band and gathered at the top by a drawstring. This envelopes the head too closely and does not protect the head sufficiently in case of a hard blow. I have devised a head support or hammock lining, shown in Figs. 10 and 11, consisting of two wide flexible members 40 and 41, having their outer ends sewed or otherwise secured to the opposite sides of tapered upper mar-

gin 10^a of the body portion, and having their inner overlapping ends laced together. A plurality of rows of lacing holes provide means for adjustment to suit the head of the wearer. This "hammock" type of head support prevents the hat or cap from being driven down over the head, while being sufficiently flexible to cause no discomfort. Moreover it does not interfere with the proper ventilation of the crown. By tying the opposite sides together, in case of a severe blow, it serves as a reinforcing strut across the base of the crown. The sweat band 14 may be shaped to enclose a cushion member 14^a between the band and the body 10. Furthermore the relative proportions of the length and width may be varied by proper adjustment of the overlapping ends of the members 40 and 41.

This case is a continuation in part of my prior application Serial No. 628,740 filed August 13, 1932.

I claim:

1. In a hat of the type described, a dome like rigid crown having a centrally disposed upstanding hollow boss and provided with hollow upstanding flutes radiating from said boss and opening thereinto.

2. In a hat of the type described, a dome like rigid crown having a centrally disposed upstanding hollow boss and provided with hollow upstanding flutes radiating from said boss and opening thereinto, the peripheral portion of said crown being substantially vertical and the flutes terminating at said substantially vertical portion and having their outer ends open to the air.

3. In a hat of the type described, a dome like rigid crown having a centrally disposed upstanding hollow boss and provided with hollow upstanding flutes radiating from said boss and opening thereinto, a rigid body having its upper edge fitted within the peripheral portion of the crown, and means for securing the interfitting portions together.

4. In a hat of the type described, a dome like rigid crown having a centrally disposed upstanding hollow boss and provided with hollow upstanding flutes radiating from said boss and opening thereinto, a rigid body having its upper edge interfitted with the peripheral portion of the crown, and a lacing securing said interfitted portions together and constituting a tension member reinforcing the cap against distortion by outward spreading.

5. In a hat of the type described, a dome like rigid crown having a substantially vertical peripheral portion, a rigid body having its upper edge interfitting with said peripheral portion, and a lacing securing the interfitting portions together and constituting a tension member reinforcing the cap

along the line of its application against distortion by outward spreading.

6. In a hat of the type described, a rigid substantially oval body, a rigid dome like crown having a peripheral portion interfitting with the upper edge of said body, means to secure the interfitting portions of the crown and body together, and adjusting means at the upper edge portion of the body for adjusting the length and width of the body relative to each other.

7. In a hat of the type described, a dome like rigid crown having a centrally disposed upstanding hollow boss and provided with hollow upstanding flutes radiating from said boss and opening thereinto, and a rigid dome member provided with a peripheral portion conforming to and resting on the crown and flutes in spaced relation to the periphery of the crown, said dome member being secured at its periphery to the crown and centrally spaced from the boss and flutes.

8. In a hat of the type described, a dome like rigid crown provided with radiating upstanding flutes, a rigid vertical body portion having an upper inwardly tapering margin adapted to interfit snugly and engage the inner wall of said crown adjacent the edge thereof, said body portion being provided with an offset or shoulder at the junction of said vertical portion and said tapering margin, and the edge of said crown resting against said ledge and means for fastening said interfitting parts together.

9. In a hat of the type described, a dome like rigid crown provided with radiating upstanding flutes, a rigid vertical body portion having an upper inwardly tapering margin adapted to interfit snugly and engage the inner wall of said crown adjacent the edge thereof, and means for fastening said interfitting parts together, and a head supporting device comprising a pair of flexible band members secured at their outer ends to said tapering margins and having their inner free ends overlap, and means for securing said free ends together and adjusting the amount of overlap.

In testimony whereof I affix my signature.
ALBERT A. STRAUSS.